QUIZ

Assuming that there is an image made of only two pixels, which of the following could be a valid `.pixels` array for the image?

```
["#FF00FF", "#000000"]
```

```
[255, 0, 255, 255, 0, 0, 0, 255]
```

👏 Correct! The `.pixels` array stores four RGBA values for each pixel, sequentially, in one flat array.

```
[[255, 0, 255, 255],[0, 0, 0, 255]]
```

```
{0: [255, 0, 255, 255], 1: [0, 0, 0, 255]}
```

What types of elements can you apply filters to in p5.js?

The canvas, image elements, and video elements.

The canvas and image elements.

👏 Correct! The `filter()` function works on the canvas, and the `.filter()` method works only on image elements.

Image elements only.

The canvas only.

Complete the code so that the video plays with the behavior described in the code's comments.

```
let video;
function preload() {
  video = createVideo(videoPath);
}
function setup() {
  // Step 1: Make the video play on loop
  video.loop();

  // Step 2: Remove the HTML video element
  video.hide();

  // Step 3: Set the volume of the video to half
  video.volume(0.5);
}
```

You got it!

Complete the code to modify the `img` image so that the pixel color at location (100, 100) is changed to black.

```
setup() {
  createCanvas(400, 400);
  img.set(100, 100, [0, 0, 0, 255]);
  img.updatePixels();
  image(img, 0, 0);
}
```

You got it!

Which code draws the `img` image to the canvas using p5.js?

```
new Image();
```

```
img(img, 0, 0);
```

```
image(img, 0, 0);
```

You got it! The `image()` function draws an image to the canvas, given an image element and x, y positions.

```
image(img);
```

What can affect the length of the `pixels` array for the canvas?

- The number of unique colors used in the sketch.
- The number of elements drawn to the canvas.
- The use of the `get()` and `set()` functions.
- The pixel density of the current p5.js sketch.

👏 You got it! A higher pixel density typically occurs on high-resolution monitors, effectively increasing the number of pixels in the `pixels` array.

What is the `preload()` function used for?

- To load external media assets that need to be completely loaded before the `setup()` and `draw()` functions.

👏 Correct!

- To allow p5.js sketches to run properly.
- To run code that must begin at the start of the sketch, such as `createCanvas()`.
- To let us draw external images to the canvas.

What does the `createVideo()` function do?

Loads an external video and displays it as an HTML video element on the webpage.

👏 You got it! By default, `createVideo()` adds an HTML video element that sits outside of the canvas.

Captures the current sketch as a downloadable video.

Loads an external video and draws the video frames onto the canvas.

Loads an external video but does not otherwise affect the webpage.

Complete the code so that it sets all pixels in the canvas to the color given by this RGBA array: `[225, 100, 200, 255]`.

```
draw() {
  loadPixels();
  for (let y = 0; y < height; y++) {
    for (let x = 0; x < width; x++) {
      let indexOfRed = (x + y * width) * 4;
      pixels[ indexOfRed ] = 225;
      pixels[ indexOfRed + 1 ] = 100;
      pixels[ indexOfRed + 2 ] = 200;
      pixels[ indexOfRed + 3 ] = 255;
    }
  }
  updatePixels();
}
```

👏 You got it!

Which of these is NOT a direct use for the `get()` function?

Retrieving the entire canvas as a p5.js image element.

Retrieving a region of the canvas as a p5.js image element.

Retrieving the `pixels` array for the canvas.

👏 You got it! The `get()` function doesn't directly retrieve the `pixels` array—that's accessed instead through the built-in `pixels` variable.

Retrieving the color of a single pixel of the canvas as a RGBA color array.

Complete the code so that it draws the image with the path **image.png** to the canvas.

```
let img;

function preload() {
  img = loadImage('image.png');
}

function setup() {
  createCanvas(400, 400);
  image(img, 0, 0);
}
```

👏 You got it!